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HYPODERMATIC INJECTION OF CALOMEL.

BY

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ATTENDING PHYSICIAN TO THE PHILADELPHIA HOSPITAL AND TO THE
HOSPITAL OF THE JEFFERSON COLLEGE OF PHILADELPHIA.

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**NOTE ON THE TREATMENT OF SYPHILIS BY THE
HYPODERMATIC INJECTION OF CALOMEL.¹**

By J. C. WILSON, M.D.,

ATTENDING PHYSICIAN TO THE PHILADELPHIA HOSPITAL AND TO THE
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THE treatment of syphilis by the intramuscular injection of calomel, as first practised by Scarenzio, in 1864, was prominently brought to the notice of the profession in Germany by Neisser, in September, 1885. Since that time a large number of communications upon this subject have appeared in the German, and more recently in the French journals. It is a remarkable fact, however, that this method of treatment has received but little notice among English and American physicians. Two papers only, those of Bloom and Morrow, have thus far appeared in American literature. Neither of these has embodied any extended clinical observations, a fact that is more noteworthy in view of the multiplying reports of the growth of this method of treating syphilis on the Continent, and especially in Germany.

¹ Read before the College of Physicians of Philadelphia, April 4, 1888.



The object of the present communication is to call attention to the details of this treatment as practised by the writer, and its results in a limited series of cases. The method is the natural outcome of efforts to render the treatment of syphilis more exact, and to keep it more completely within the control of the physician by the administration of specific remedies hypodermatically. It marks a step in the advance of the therapeutics of syphilis beyond the hypodermatic use of the soluble salts of mercury, as the bichloride, formerly advocated, and still occasionally employed in cases in which it is necessary to obtain the full effect of mercury rapidly. The difference between the therapeutic effects of the soluble and the insoluble mercurial salts hypodermatically injected is, however, an important one. In the case of the former, absorption readily occurs, and the effects of the drug are manifested with great promptitude; thus, Hutchinson quotes Bloxam as saying that one-third of a grain of bichloride of mercury dissolved in twenty drops of water and repeated hypodermatically on three consecutive days, will usually salivate freely; whereas the insoluble salts, introduced by the hypodermatic method, undergo chemical changes in the presence of the fluids of the tissues with comparative slowness, thus keeping up a prolonged and relatively mild influence until their chemical conversion and absorption are completed. The gradual nature of this process is shown by the fact that, in one of my cases, slight ptyalism occurred on the ninth day after the injection of one grain of calomel. Much difference of opinion

has been expressed as regards the relative advantages of the mode of treatment under consideration ; the greater number, however, of those who have published their observations regard it as possessing certain positive advantages over the methods hitherto practised. Among these advantages may be named the following :

A. As over the administration of the preparations of mercury by the mouth :

1. The absence of any directly unfavorable influence upon the digestive apparatus (nausea, loss of appetite, colic, diarrhœa), especially in cases where mercury in sufficient doses is not well borne.

2. Precision of dosage.

3. Control of the administration by the physician, and, therefore, better opportunity, especially in private practice, to observe the effect of the drug, as well as the general condition of the patient, at fixed intervals.

4. Simplification of the treatment as regards the patient himself, and diminution of the liability of his condition becoming known.

5. Promptness of action.

6. Diminished risks of salivation.

B. As over treatment by inunction, in addition to the above advantages, we have :

1. Absolute cleanliness. This point is of much importance in private practice. Mercurial inunctions are not acceptable to the better class of patients, and are feasible only in cases where the symptoms are urgent, and the patient fully realizes the gravity of the situation.

2. Convenience of administration in all respects.

C. As over the treatment by fumigation, etc., in addition to the above, we have:

1. Comparative safety of the method of treatment.

2. Absence of the necessity for attendants, and for the use of apparatus of any form on the part of the patient.

D. As over other forms of treatment in ordinary use, the fact that stubbornly rebellious symptoms often yield with promptness to hypodermatic injections of the insoluble salts.

The disadvantages of this treatment, as compared with the methods in general use, are:

1. Pain.

2. Danger of the formation of abscesses.

It may be said at this point that both of these disadvantages are reduced to a minimum by attention to the details of the little operation, and especially by the observance of the rule to introduce the medicament deeply into the substance of the muscle.

Some degree of burning pain is, however, produced by almost every injection. It is, as a rule, moderate, and comes to an end in the course of a few minutes. It is, on the contrary, however, sometimes quite severe. Exceptionally, the injection has caused no pain whatever beyond the mere prick of the needle.

The danger of the formation of abscesses is very slight when the injection is properly performed. Antisepsis must be complete as regards the material injected, the syringe, and the patient's skin at the point of puncture, and the calomel must be thrown

deeply into the muscular substance, the needle being entered perpendicularly to the plane of the surface. The most convenient site is the lateral aspect of the gluteal region in the fossa behind the great trochanter. Smirnoff and Sofiantini state that calomel injections in this region are never followed by abscesses. Shadek says "abscesses never occur after deep intramuscular injections of the quicksilver preparations; coagulations—that is to say, nodes and induration at the point of injection—are rarely seen." Watrazewski saw only 4 abscesses follow 257 calomel injections. In my own private practice, in thirty-two injections in six patients once only slight fluctuation occurred at the seat of puncture. It disappeared in the course of a few days. In the cases treated at the Philadelphia Hospital, several small, superficial abscesses developed at the point of injection. These were among the earlier cases, and the procedure was practised without due regard to antisepsis.

On the other hand, Kopp and Chotzen counted 48 abscesses after 768 injections of 0.1 of a gramme (1.5 grains) of calomel. Krecke caused suppuration of the subcutaneous tissue in 21 instances out of 171 injections, while Monti, Bockhardt, and others, have abandoned the treatment on account of this danger.

There can be no doubt, in view of these varying results, that the occasional formation of abscesses is due to faults in technique. It is, therefore, largely, if not indeed wholly, avoidable, and constitutes no real objection to the treatment.

Two of the insoluble salts of mercury have been used, calomel and the yellow oxide. My own ob-

servations have been made with calomel alone. Neisser suspended the calomel in water with a little gum Arabic. The original formula was

Calomel,					
Sodii chlorat.	.	.	.	.	āā 5.0.
Aquæ dest.	.	.	.	.	50.0.
Mucilag. acaciæ	.	.	.	.	2.5.

The formula given by Bloom is,

Calomel by vapor	.	.	.	5.0 (Ḑiv).
Sodii chloridi	.	.	ʒ	1.25 (Ḑj).
Aquæ dest.	.	.	.	50.00 (f ʒxiiijss).

It is obvious that this mixture defeats the object of the treatment in view of the rapid chemical changes by which bichloride of mercury and metallic mercury are formed at the expense of the calomel. After some experience, calomel was administered by various observers in suspension in liquid vaseline, by others, in pure olive oil. One of the difficulties of the injection of calomel is found in the liability of the needle of the ordinary hypodermatic syringe to become clogged. For this reason both the vaseline and oil are objectionable. My own injections, after a few early trials with the above substances, have been made with glycerine, as suggested by Smirnoff, and in order to secure greater accuracy of the dose and to overcome the tendency of the calomel to settle at the bottom of the vial, I order the doses from the apothecary, separately, in drachm vials, each containing

Calomel by vapor	.	.	.	grain 1.25
Glycerine (pure)	.	.	.	℥ xv.

A number of these vials are ordered at once, and are protected from the light. At the time of using, the cork is removed and a few minims of recently boiled water are forcibly injected from the needle of the syringe into the bottle in order to displace the calomel that has settled. The bottle is then thoroughly shaken until the calomel is suspended. The mixture is next poured into a little conical porcelain capsule, and quickly taken up through the nozzle of the syringe. The needle is then adjusted, the air expelled, and the operation performed in such a manner that the drug is thrown into the muscular mass. A grain of calomel, approximately, is the usual dose. The formula calls for one and a quarter grain for the reason that notwithstanding the greatest promptness, a certain amount of the calomel remains at the bottom of the capsule, and a little in the syringe itself.

The antiseptic precautions consist in thorough disinfection of the apparatus employed immediately before each injection by means of water boiled for some minutes in a test-tube, and in the careful cleansing of the skin at the point of puncture, by a solution of corrosive sublimate 1 : 1000. Burning pain usually follows, lasting for some minutes, and the circumscribed deep infiltration, which may be detected after the injection, becomes the seat of moderate tenderness, and more or less induration, lasting for some days, or even a week or two.

When we come to consider the transformations which the insoluble mercurial salts undergo when thus injected, we enter a field as yet but little investigated.

It is probable that to a slight extent chemical reactions take place with certain organic principles, notably albumen, with the formation of albuminate of mercury, but that the greater part of the calomel undergoes in the constant presence of the alkaline fluids of the tissues gradual conversion into a double chloride of mercury and sodium. In this respect it follows the course of mercury introduced into the economy by way of the alimentary canal.

The following cases were treated in the Philadelphia Hospital, and the notes are condensed from the ward histories taken by Dr. Hutchinson, Resident Physician.

CASE I.—J. A., male, æt. forty-eight; admitted September 23, 1887, to Medical Ward 2, bed 10; Irish, a store-porter, moderate drinker. No hereditary tendency to disease of the nervous system. Chancre in 1861 or 1862; lymphatic enlargement; stubborn faucial and buccal symptoms; no recollection of a rash; prolonged treatment by mercury. In 1867, spinal symptoms, staggering gait, dizziness, and difficulty in holding his water. Systematic treatment for two years, with complete recovery. He then married; wife's first pregnancy resulted in miscarriage. The second child was healthy, and is still living. Four children born subsequently died in early infancy from "marasmus." In 1875 there was recurrence of the spinal symptoms; he then was treated in the Orthopædic Hospital; states that recovery rapidly took place under strychnia and increasing doses of iodide of potassium; continued well until the spring of 1887, when spinal symptoms recurred, together with loss of sexual power and

desire, marked ataxia, burning sensations and numbness, especially in the limbs and feet. Knee-jerk much exaggerated in both legs. Examination of the eyes by Dr. de Schweinitz showed insufficiency of the internal recti, oval disks distinctly gray in the second layer, and distention of the lymph sheaths along the arteries and veins; no distinct retinal changes except haziness. Diagnosis as to eyes, probable early gray degeneration of the optic nerve. Hypodermatic treatment from Nov. 11, 1887, to Feb. 17, 1888; total number of injections, seven; result, very decided improvement. Patient transferred to the surgical ward, for the treatment of cystitis.

CASE II.—G. M., male, æt. thirty-seven; admitted to Medical Ward 2, bed 2, September 28, 1887. Primary sore occurred in 1876; secondary lesions of the mouth and throat, with falling of the hair; no recollection of a rash. Two years later, symmetrical, circumscribed ulcers of the shoulders and thighs, the scars of which remain. In 1879, sharp pains in the knees and ankles, lasting for some months, and disappearing under treatment. In 1886, acute pain and swelling of the knees and ankles, always aggravated at night, kept him in bed for eleven months. Upon admission to the Hospital, there was well-marked periostitis of the clavicles, tibiæ, and radii. Slight improvement only under large doses of iodide of potassium. On December 11, 1887, other medication having been stopped, he was given calomel hypodermatically, and had in all five injections at intervals of a fortnight. Very decided improvement. He was subsequently treated by Dr. Bruen with hypodermatic injections of bichloride of mercury.

CASE III.—J. J., male, æt. thirty-seven, Italian laborer, admitted to Medical Ward 8, bed 9, December 24, 1887, complaining of vague pains in various

parts of the body and constant headache. The initial lesion occurred five weeks prior to admission. Lesions of the tonsils and throat. About January 16, 1888, well-characterized macular eruption appeared over the whole body; enlargement of the superficial lymphatic glands. January 17th, hypodermatic treatment begun, and he received in all eight injections. On March 23d, the following note was made: "The patient better in every respect; the eruption has disappeared; the superficial lymphatics have undergone resolution; the patient free from pain and feels perfectly well. He has had at no time any stomatitis or diarrhœa." This patient received on one occasion two grains of calomel by hypodermatic injection. A superficial abscess occurred at the site of one of the injections.

CASE IV.—C. McG., male, aged twenty-eight, Irish, blacksmith, admitted to Medical Ward 8, bed 10, January 27, 1888. The initial lesion occurred October 1, 1887. He suffered with severe pains in the head, arms, and body; considerable induration about the point of the chancre on the dorsal aspect of the penis in the sulcus. Inguinal lymphatics much enlarged, also the post-cervical and epitrochlear glands. A profuse papular eruption covered the whole body. The treatment by calomel, hypodermatically, commenced January 28th, and he had in all nine injections. During the course of the treatment an abscess formed at the side of the neck, and two or three small abscesses formed in the gluteal region at the site of the injection. There was no stomatitis or diarrhœa. Within two months of the beginning of the treatment the sore on the penis had healed, the glands had undergone resolution to a considerable extent, and the eruption had disappeared, with the exception of a few scaly

papules in the region of the lips, the lower part of the abdomen, and the thighs. March 15th, the patient was still doing well.

CASE V.—L. S., male, æt. twenty-five, roofer by occupation, American, admitted to Medical Ward 2, bed 18, February 25, 1888. He first observed the initial lesion some time during the autumn of 1887. There was phimosis, for which circumcision was performed. Secondary symptoms, sore throat, constant headache, enlargement of the superficial lymphatics, uniform papular rash over the body and legs. Treatment was commenced February 26th. In all six injections were given up to March 15th, when it was noted that the glands were undergoing resolution, that the rash had, to some extent, faded, that the headache had disappeared, and that his general condition was improving. There were no abscesses, no sore mouth, and no diarrhœa.

CASE VI.—J. F., æt. twenty-five, Irish, admitted to Medical Ward 8, bed 24, October 20, 1887. The initial lesion occurred fifteen months before admission, and was followed by non-suppurating enlargement of the glands of the groin. He had suffered with iritis in both eyes, but not at the same time. Severe periosteal and articular pains. Treatment by hypodermatic injections of calomel was commenced in January, 1888. After the second injection the patient refused to continue the treatment on account of the pain attending it.

The following cases were treated in private practice:

CASE VII.—X., male, æt. forty-five, a man of leisure, had the initial lesion in 1873. Intense and protracted secondary lesions affected the mucous

membrane of the mouth and the cutaneous surface ; prolonged mercurial treatment. A period of about five years passed without symptoms of any kind. In 1881 there appeared extensive, stubborn ulceration of the tongue, very little modified by treatment by mercurials and iodides, and local treatment with nitric acid. He came under my observation in 1882. There was deep serpiginous ulceration of the left border of the tongue, with extensive cicatrices of the right border ; scaly eruption of the palms of both hands, not symmetrical, with deep, linear, fissured ulcers of the flexures ; thick, scaly patches upon the soles and borders of both feet, with considerable thickening of the skin ; a large, scaly patch on the left side of the scrotum. Decided improvement under alternating courses of iodide of potassium and protiodide of mercury, with frequent applications of nitrate of silver to the lingual ulcers. The latter in the course of a few months had healed, and since have only occasionally, and for short intervals, given trouble. The scaly patches have undergone occasional improvement, but never disappeared, notwithstanding the fact that the patient has been steadily under observation to this date, and for most of the time under treatment. Mercurial inunctions, although frequently proposed, have never been practised, owing to the patient's unwillingness to subject himself to the inconvenience. Treatment by hypodermatic injections commenced November 4, 1887, and was continued somewhat irregularly until the end of February, 1888, five injections in all having been administered. After the second injection, the scaly patches upon the hands, feet, and scrotum absolutely disappeared. On the ninth day after the first injection slight salivation was noted.

CASE VIII.—F. H., male, æt. thirty-two, a traveling salesman, came under observation with the initial lesion in April, 1886. I had the opportunity of seeing the female from whom the disease was contracted, then suffering from intense secondary symptoms. F. H. developed in due course of time superficial ulcers of both tonsils, mucous patches, macular rash, and enlargement of the superficial lymphatics; none of these symptoms, however, being intense. The general health continued good. After a year of systematic treatment with protiodide of mercury, with occasional brief intermissions, the patient still presented a few reddish, scaly papules upon the forehead at the edge of the hair, upon the fingers and the legs; these lesions, however, not being symmetrical. In March, 1887, iodide of potassium was given in moderate doses, and continued until November, 1887, with the effect of modifying but not curing the cutaneous lesions.

Hypodermatic treatment commenced December 10, 1887. It was interrupted by the absence of the patient from the city until February 16, 1888, when the second injection was administered. The patient was unable to return until March 10th. He then stated that after the second injection a very decided improvement in his symptoms had occurred, and requested that the treatment should be regularly continued. From that day until the present time he has received four injections at intervals of a week, making six injections in all. The lesions have entirely disappeared.

CASE IX.—Mrs. R., widow, æt. thirty-eight, was sent to me from the central part of Pennsylvania, by a medical friend, February 10, 1888. She had been ill three years with a teasing cough, attended by scanty expectoration, occasional night-sweats,

but without loss of flesh. She had consulted a number of physicians without benefit. The appetite was fairly good ; the temperature as taken in the mouth at 4 P.M. was normal. There was dulness over the right lung anteriorly in the mammary region, with abundant subcrepitant and crepitant râles heard in the infra-scapular area and extending down the anterior border of the lung. Percussion elsewhere yields good resonance, and especially is this noted in the supra-clavicular region on both sides ; examination of the sputum showed no bacilli.

February 27. The signs not having changed and the patient having a normal evening temperature, the history was carefully investigated. There was no hereditary tendency to phthisis. The patient married twelve years ago, a man somewhat younger than herself, whose occupation compelled him to be much absent from home. Within a year the wife miscarried at the sixth month. Two years later a child was born apparently healthy. It developed snuffles when one month old and died at the age of four months of "marasmus." The husband complained from the time of marriage of frequent severe headache. The attacks of headache after a time became so violent that he was obliged to discontinue his occupation for periods of several days together. Later the headaches were followed by confusion. There is no history of any special condition of the eyes nor of paralysis until about three years before his death. At this time he was seized with unconsciousness and irregular palsies. This attack was not followed by recovery ; on the contrary, his mental condition became progressively feeble, he lost the power of locomotion and died paralytic one year ago.

Mrs. R., his widow, informs me that shortly after

her marriage she had sore throat which lasted for more than a year despite treatment, and that at that time she almost wholly lost her hair, which, however, afterward grew in; does not recall any eruption.

29th. Treatment by hypodermatic injections was commenced and has been continued up to the present time, five injections having thus far been administered. The area of percussion dulness is much less extensive, the subcrepitant râles are not heard, and a few crepitant râles only can be elicited on forced inspiration after efforts of coughing. The diagnosis in this case is not, perhaps, positive, but there is warrant for the assumption that these symptoms and signs are due to gummatous infiltration of the lung.

CASE X.—Mrs. S., æt. fifty-six, has suffered for many years with intense paroxysmal headaches accompanied by disturbance of hearing and hallucinations, followed by deep stupor at intervals of from six weeks to three months. These attacks last from two or three to six or eight days. In the intervals there is a feeling of confusion and dull headache, easily excited by mental or physical effort. General nutrition good. The eye grounds have been examined by the late Dr. Little and by Dr. William Thomson with negative results. The urine has never been albuminous. There is no cardiac disease. No history whatever is to be obtained in this case. The patient's husband presents no indications of having suffered from syphilis; there are three grown-up daughters all in good health. The oldest, however, has, to a well-marked degree, the physiognomy of hereditary syphilis with characteristic narrowing and notching of the upper central incisors. This deformity was so conspicuous that she had the teeth

removed and replaced by artificial pivoted teeth. The other daughters show nothing characteristic. The symptoms of this patient never improved under mercurial treatment by the mouth or under iodide of potassium. On several occasions, mercurial inunctions have been followed by a cessation of the headaches for a period of some months, and a mitigation of the severity of the paroxysms upon their recurrence. On more than one occasion she has been ptyalized as a result of this treatment. Treatment by the hypodermatic injection of calomel was commenced November 20, 1887, and continued at intervals of, at first, a week and later two weeks until the present time. Eleven injections in all have been administered. From the time of the commencement of this treatment, the patient, although suffering from occasional dull headache and the old sense of confusion, has had no recurrence of her attacks.

CASE XI.—N. S., female, æt. seventeen, the third child of syphilitic parents; with the typical facies of hereditary syphilis, prominent frontal bosses, sunken nose, and notched teeth, developed, at the age of fifteen, interstitial keratitis with double iritis resulting in total blindness. She was successfully treated by Dr. Charles S. Turnbull, improvement gradually taking place under frequently repeated small doses of biniodide of mercury. Within a year there has appeared a copious, thick-set, acneform eruption, most copious over the sides of the face, the shoulders, and the thighs. This eruption has the color of lean ham; is papular and occasionally pustular. The hypodermatic treatment was commenced March 2, 1888, and has been repeated at intervals of ten days, three injections in all having been administered up to the present time.

Under this treatment the eruption has rapidly improved, a large proportion of the papules have entirely disappeared, and those which remain have lost their vivid copper-red color.

CASE XII.—B., æt. forty-one, was seen in consultation December 31, 1887, with Drs. C. M. Wilson and Murray Cheston. The details of the history were not known further than that he had been under the care of an ophthalmic surgeon for serious syphilitic eye trouble, which had improved under specific treatment. The patient had been disinclined to take care of himself, or to follow the directions given by his medical adviser. The day before he came under observation he had complained of unusually severe headache upon the left side, and had gradually lost power of the right arm and leg. When seen he was completely aphasic; the intelligence was clear. Two hypodermatic injections of calomel were administered, but in view of the gravity of the case and lack of experience in regard to this treatment, it was abandoned for mercurial inunctions, under which the patient rapidly regained his speech, and, to a certain extent, the use of the paralyzed side. The treatment is now being conducted by a female evangelist of the "faith-cure," under whose care the patient had been for some weeks prior to the attack in which I saw him.

Whole number of patients treated, twelve; injections, sixty-nine.

My thanks are due to Dr. Hutchinson, Resident Physician at the Philadelphia Hospital, for his interested pains taken in this clinical study, and to my colleagues, Drs. Bruen and Steinbach, for courtesies

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BIBLIOGRAPHY.

Schadek, K.: Wien. med. Presse, 1886, xxvii. 913, 948. *Neisser*: Breslau. Aerzt. Zeitschr., 1886, viii. 42-44. *Bloxam, J. A.*: Lancet, Lond., 1886, ii. 337. *Hallopeau, H.*: Compt. rend. Soc. de biol., Paris, 1886, 8 s., iii. 369. *Schadek, K.*: Allg. Wien. med. Ztg., 1886, xxxi. 386, 411; also, St. Petersb. med. Wochenschr., 1886, n. F., iii. 267-270. *Lanz*: St. Petersb. med. Wochenschr., n. F., iii. 315-317. *Watraszewski*: Wien. med. Presse, 1886, xxvii. 1300-1302. *Balzer, F.*: Compt. rend. Soc. de biol., Paris, 1886, 8 s., iii. 512-515. *Neisser*: Verhandl. de Cong. f. innere Med., Weisb., 1886, v. 267-302. *Balzer, F.*: Tribune med., Paris, 1887, xix. 267, 281. *Dehio, K.*: St. Petersb. med. Wochenschr., 1887, n. F., iv. 189. *Zeissl, M.*: Centralbl. f. d. ges. Therap., Wien, 1887, v. 289-302. *Besnier*: Tribune méd., Paris, 1887, xix. 319, 320. *Kühn, G.*: Deutsche med. Wochenschr., Leipzig, 1887, xiii. 664-666. *Morrow, P. A.*: Med. Rec., N. Y., 1887, xxxii. 501, 505. *Brocq, L.*: Gaz. hebdom. de méd., Paris, 1887, 2 s., xxiv. 594, 612. *Krecke, A.*: München. med. Wochenschr., 1887, xxxiv. 753-755. *Reinhard, C.*: Deutsche med. Wochenschr., Leipzig, 1887, xiii. 889-892. *Bézy*: Rev. méd. de Toulouse, 1887, xxi. 438-443. *Trzcinskij, T.*: Vrtljschr. f. Dermat., Wien, 1887, xiv. 933-945. *Reinhard, C.*: Berlin and Leipzig, 1887. *Crocq*: Presse med. belge, Brux., 1887, xxxix. 329-334. *Reinhard*: Mitth. d. Ver. D. Aezerte in Nied.-Oest., Wien, 1887, xii. 290. *Rosenthal, O.*: Vrtljschr. f. Dermat., Wien, 1887, xiv. 1101-1107. *Thiry*: Presse med. belge, Brux., 1887, xxxix. 305-309. *Welander, E.*: Vrtljschr. f. Dermat., Wien, 1887, xiv. 1039-1048. *Bloom, I. N.*: Am. Pract. and News, Louisville, 1887, n. s., iii. 100-102. *Kopp, C., and Chotzen, M.*: Vrtljschr. f. Dermat., Wien, 1886, xiii. 747-765. *Martin, Armand*: Paris, 1886. *Smirnoff, George*: Therap. Monatschrift, Aug. 1887. *Kopp, C.*: München. med. Wochenschr. 1887, xxxiv. 95-98. *Krecke, A.*: München. med.

Wochenschr., 1887, xxxiv. 95-98. *Liebreich, O.* : Cong. period. internat. d. Sc. med. Compt. rend., 1884; Copenh., 1886, iii. Sect de Dermat. et Syph., 66-70. *Martineau, L.* : Ibid., 76-88. *Balzer, F.* : Bull. et mem. Soc. méd. d. hot. de Paris, 1887, 3 s., iv. 112-124. *De Smet* : Clinique, Brux., 1887, i. 189-197. *Diday, P.* : Lyon Méd., 1887, liv. 578-581. *Harttung* : Deutsche med. Wochenschr., Leipzig, 1887, xiii. 330.

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